IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Akira YAMAGUCHI

Appln. No.: 09/782,199

Confirmation No.: 9852

Filed: February 14, 2001

Docket No: Q62086

Group Art Unit: 2871

Examiner: Hoan C. NGUYEN

For: LIGHT DIFFUSING PLATE, LIQUID CRYSTAL DISPLAY APPARATUS AND REAR
        PROJECTION APPARATUS

RESPONSE TO ELECTION OF SPECIES & SUBSPECIES REQUIREMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

The Examiner has identified the application as containing claims directed to three (3)

distinct species and two (2) subspecies. The Examiner has required the Applicant to elect a

single disclosed species for prosecution on the merits to which the claims shall be restricted.

Applicant has been advised that a response to this requirement shall include an

identification of the species that is elected and a listing of all claims readable thereon. The

species identified by the Examiner are as follows:

Species A	-	drawn to a light diffusing plate with the refractive satisfying the formula in line 16 or claim 1;
Species B	-	drawn to a light diffusing plate with the refractive satisfying the formula in lines 20-21 of claim 7; and
Species C	-	drawn to a light diffusing plate with the focal point satisfying the formula in lines 19-20 of claim 13.

The Examiner believes there are currently no generic claims presented applicable to all three species. However, the Examiner believes that claims 5 and 6 are generic to Species A; claims 11 and 12 are generic to Species B; claims 17 and 18 are generic to Species C.

Additionally, the Examiner requires Applicant to elect one subspecies under each of the above species. According to the Examiner, each of species (A-C) above contains embodiments directed to the following patentably distinct subspecies of the claimed invention:

Subspecies I   -   the subspecies of first embodiment (Figures 1-4); and

Subspecies II   -   the subspecies of second embodiment (Figures 5 and 10).

In response to the Examiner's requirement, Applicant provisionally elects Species A, subspecies I for examination on the merits, on which claims 1-6 are readable. However, for the reasons set forth below, this provisional election is made with traverse.

Applicant submits that the Election of Species & Subspecies Requirement improper at least with respect to the asserted restriction of species, A-C, and further, because there appears to be at least one important logical error in the assertion of subspecies I and II. Moreover, Applicant submits that the added burden to Examiner in examining claims directed to all three asserted species simultaneously would be minimal.

In particular, the light diffusing plates recited in claim 1, which correspond to Figs. 1 to 7B, of alleged Species A, and recited in claim 7, which correspond to Figs. 8 to 10, of alleged Species B, respectively, both utilize a multitude of microlenses with a spherical surface. Further, the microlenses are disposed in an arrayed manner and have the same configuration except for the respective shapes of microlens and the light exit area. For example, in claim 1, the shapes of

the microlens and light exit area are both circular while in claim 7 they are both rectangular. Naturally, the shape of the light exit area corresponds to the shape of the microlens, e.g., circular to circular or rectangular to rectangular, etc., because the microlenses utilized in each example are those having a spherical surface.

Moreover, what is recited in the respective "wherein" clauses of claims 1 (Figs. 1 to 7B) and 7 (Figs. 8 to 10) that differentiates one claim from the other is the relationship between the size (Sr, Sa, Sb) of the microlens with a spherical surface, the size (R, A, B) of the light exit area, the thickness, t, of the lens substrate, and the refractive index, n, of the lens substrate. This relationship, however, can be expressed in a single formula, as follows:

$$(Sr, Sa, Sb) \geq 2t \times \tan\theta + (R, A, B), \text{ wherein } \theta = \sin^{-1}(1/n)$$

As seen from the discussion above, the light diffusing plates as recited in claims 1 and 7 are based on the same technical idea and are not patentably distinct from each other.

Particularly in claim 7, in which the shape of the microlens is rectangular, with a side of the rectangle having a length Sa and another side a length Sb, and the shape of light exit area is also rectangular with a side having a length A and another side a length B, if the shapes of microlenses and the light exit area are both square, that is to say, if Sa = Sb and A = B, the two formulae in the claim will be unified into one formula which is coincident with the single formula in claim 1.

As stated above, in each of the light diffusing plates according to claims 1 and 7, the relationship between the size of the microlens, the size of the light exit area, as well as the thickness and the refractive index of the lens substrate, is defined based on one and the same technical idea. That is, they are directed to achieving an object and effect of the invention of

3

providing a light diffusing capability ensuring that a collimated light is sufficiently diffused and the collimated light which has been incident on the plate through an appropriate optical path is issued without waste thereof. Therefore, the light diffusing plates in claims 1 and 7 should have at least been grouped together in the same species.

Furthermore, the light diffusing plate recited in claim 13 has a similar configuration to the plate recited in claim 1. However, the microlenses utilized in a plate according to claim 13 have an ellipsoidal surface while the microlenses utilized in the light diffusing plate in claim 1 have a spherical surface. The formulae recited in claim 13 are different, indeed, in form from the formula in claim 1. The difference resides only in the fact that a spherical surface has a unique center while an ellipsoidal surface has two focuses. The formulae in claim 13 are similar to the formula in claim 1 in that they define the relationship among the size of a microlens utilized, the size of a light exit area, the thickness of the lens substrate, and the refractive index of the lens substrate. Accordingly, the light diffusing plates in claims 1 and 13 have the same object and effect.

With respect to the asserted subspecies requirement, Applicant respectfully submits that the Examiner has improperly identified Figs. 1-4 as corresponding to alleged subspecies I and Figs. 5 and 10 as corresponding to alleged subspecies II. It is unclear on what basis the Examiner has distinguished subspecies I and II. For example, the Examiner has grouped the embodiments shown in Figs. 1-4 and the embodiments shown in Figs. 5 and 10. However, it is clear that the embodiment recited in claim 1 is shown in Figs. 1 to 7B and the embodiment recited in claim 7 is shown in Figs. 8 to 10. In other words, it is unclear why the Examiner has grouped Figs. 5 and 10 into a single subspecies.
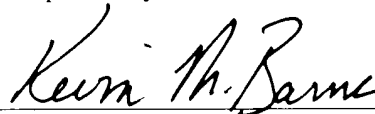
For the reasons set forth above, Applicant respectfully traverses the election of species requirement with respect to species A-C or, in the alternative, at least with respect to species A and B. Also, for the reasons stated above, Applicant traverses the election of subspecies I and II.

Although Applicant has provisionally elected species A, subspecies I, Applicant reserves the right to subsequently file a generic claim applicable to all species and subspecies and, if necessary, Applicant reserves the right to file a Divisional Application directed to non-elected claims 7-18.

Applicant submits that if any of the elected claims are found to be allowable, claims dependent therefrom should be similarly be considered allowable in the same application.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Kevin M. Barner
Registration No. 46,075

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373
PATENT TRADEMARK OFFICE

Date: March 6, 2003

Attorney Docket No.: Q62086

5